

Remarks

Claims 1-34 are pending in the application, with claims 1-6 being independent. Claims 1-6, 11 and 30-34 have been amended and claims 35-102 have been cancelled.

In response to the rejection under section 112, first paragraph, claims 1-6 have been amended to eliminate the references to constant evaporation rates. In view of these amendments, applicant requests reconsideration and withdrawal of this rejection.

Claim 2 has been further amended to recite that, in forming the second film, evaporation of the dopant begins after the first film is formed. Similarly, claim 4 has been amended to recite that, in forming the second luminous layer, evaporation of the dopant begins after the first luminous layer is formed. Support for these amendments may be found in the application at, for example, page 4, lines 20-24. Claims 11 and 30-34 have been amended to correct typographical errors. No new matter has been added.

Independent claims 2 and 4 and their dependent claims 12, 14, 15, 17, 20 and 22 have been rejected as being anticipated by Xie.

Applicant requests reconsideration and withdrawal of the rejection of claim 2 and its dependent claims because Xie does not describe or suggest forming a first thin film comprising an organic material by evaporation, and then forming a second thin film comprising the organic material and a dopant by evaporating the dopant while continuing the evaporation of the organic material, with evaporation of the dopant beginning after the first thin film is formed, as recited in claim 2. In making the rejection, the Examiner appears to be arguing that Xie's 60 nanometer electron injecting and transport layer may be said to constitute two 30 nanometer electron injecting and transport layers that correspond to the two recited films. However, since Xie's entire electron injecting and transport layer is made by evaporating two materials, Xie in no way describes or suggests beginning evaporation of the dopant after the first film is formed. For at least this reason, the rejection of claim 2 and its dependent claims should be withdrawn.

Xie similarly fails to describe or suggest the subject matter of claim 4 and its dependent claims. In particular, for the reasons noted above, applicant requests reconsideration and withdrawal of the rejection of claim 4 and its dependent claims because Xie does not describe or

suggest forming a first luminous layer comprising a luminous material by evaporation, and then forming a second luminous layer comprising the luminous material and a dopant by evaporating the dopant while continuing the evaporation of the luminous material, with evaporation of the dopant beginning after the first luminous layer is formed, as recited in claim 4.

Claim 1 and its dependent claim 7 have been rejected as being unpatentable over Motomatsu in view of Xie. In making the rejection, the Examiner concedes that Motomatsu does not state that the second film is formed by stopping evaporation of the dopant while continuing evaporation of the organic material. The Examiner then argues that

[o]ne of ordinary skill in the art would have understood that stopping and starting the evaporation of the organic material would necessarily have taken longer than merely continuing the evaporation, and that an increase in the time of production would necessarily have reduced the number of light-emitting devices manufactured per unit time (production rate). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have continued the evaporation of the organic material while stopping the evaporation of the dopant in order to have minimized the process time, and therefore maximized the production rate.

Applicant respectfully disagrees with the Examiner's premise, in that continuing evaporation would not necessarily have increased the production rate, and, accordingly, a desire to increase the production rate would not necessarily have led one of ordinary skill in the art to continue the evaporation of the organic material. For example, if a second chamber or region were available such that the second thin film of one device could be formed in parallel with the first thin film of another device, then continuing the evaporation to form the second thin film would actually decrease the production rate (i.e., by decreasing the frequency with which the first thin films could be formed). Accordingly, since continuing evaporation of the organic material would not necessarily have increased the production rate, and Motomatsu provides no other indication that a second thin film may be formed by continuing evaporation, applicant submits that Motomatsu does not describe or suggest this element of claim 1. Since Xie does not remedy this failure of Motomatsu, applicant requests withdrawal of the rejection of claims 1 and 7.

Claim 8, which depends from claim 1, has been rejected as being unpatentable over Motomatsu in view of Xie and Kobori. Applicant requests reconsideration and withdrawal of

this rejection because Kobori does not remedy the failure of Motomatsu and Xie to describe or suggest the subject matter of claim 1.

Claim 9, which depends from claim 1, has been rejected as being unpatentable over Motomatsu in view of Xie, Kobori, Ueda and Maricle. Applicant requests reconsideration and withdrawal of this rejection because Ueda and Maricle do not remedy the failure of Motomatsu, Xie and Kobori to describe or suggest the subject matter of claim 1.

Independent claims 2-6 and their dependent claims 12-24 have been rejected as being unpatentable over Motomatsu in view of Xie and Kobori. This rejection relies on the same faulty conclusions about production rates discussed above with respect to claim 1 and should be withdrawn for the reasons discussed above with respect to claim 1.

Moreover, with respect to claims 2, 4 and 6, and their dependent claims, this rejection relies on further impermissible hindsight reconstruction of the invention. In particular, while conceding that Motomatsu does not describe a process by which a second thin film or luminous layer is formed by evaporating a dopant while continuing the evaporation of an organic or luminous material, the Examiner relies on a statement in Kobori as providing motivation for reversing the order of the layers in Motomatsu and forming a second layer in Motomatsu's device by evaporating a dopant while continuing to evaporate an organic or luminous material used to form a first layer. For the reasons noted below, applicant strongly disagrees with this conclusion.

Kobori says that the layer stacking order in a device that includes an anode 3, a hole injecting and transporting layer 4, a light emitting layer 5, an electron injecting and transporting layer 6, and a cathode 7 may be reversed when the device includes an opaque substrate. Initially, this mere statement that the layer reversal could be done provides no indication that it should be done and, accordingly, provides no motivation to make the change suggested by the Examiner.

Moreover, Motomatsu describes a glass substrate. While Motomatsu is silent as to whether the substrate is transparent or opaque, it is reasonable to assume that is transparent given the normal properties of glass and given Motomatsu's statement that the electrode formed on the substrate is transparent. As such, Motomatsu does not satisfy the condition under which Kobori

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indicates that the order of the layers may be reversed and, accordingly, Kobori would have provided no motivation to reverse Motomatsu's layers for this additional reason.

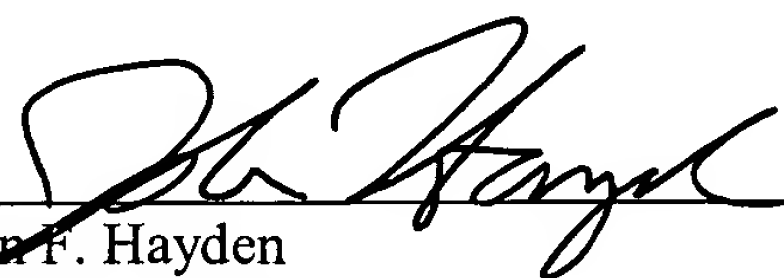
Accordingly, the rejection of claims 2, 4, 6 and their dependent claims should be reversed for the additional reasons noted above.

Various dependent claims have been rejected as being unpatentable over Motomatsu in view of Xie and Kobori and further in view of Singh and Thompson (claims 10 and 25-29) or Yamada (claims 11 and 30-34), or over Xie in view of Yamada (claims 30 and 32). Applicant requests reconsideration and withdrawal of this rejection because neither Singh, Thompson, Yamada, nor any combination of these references remedies the failure of the primary references to describe or suggest the subject matter of the independent claims.

Enclosed is a check in the amount of \$1,190 for the Request for Continued Examination fee (\$770) and the Petition for Extension of Time fee (\$420). Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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